

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference Case 21402 WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/10366	International filing date (day/month/year) 18.09.2003	Priority date (day/month/year) 27.09.2002
International Patent Classification (IPC) or both national classification and IPC C12P7/26		
Applicant DSM IP ASSETS B.V.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 4 sheets, including this cover sheet.
 - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

- This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 20.03.2004	Date of completion of this report 31.08.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Scott, J Telephone No. +31 70 340-2206 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/10366**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-7 as originally filed

Claims, Numbers

1-6 received on 13.08.2004 with letter of 12.08.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-6
	No: Claims	
Inventive step (IS)	Yes: Claims	1-6
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-6
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

i). Prior Art

Reference is made to the following documents :

D1 : Applied and Environmental Microbiology 61(2), 413-20, 1995

D2 : US - A - 3 907 639

D1 discloses (p.413, col.1, l.1-16) the preparation of 2-keto-L-gulonic acid from L-sorbose using *Gluconobacter oxydans* IFO 3293.

D2 details the preparation of 2-keto-L-gulonic acid from L-sorbose using *Pseudomonas putida* (ATCC 21812) and *Gluconobacter melanogenum* IFO 3293.

ii). Novelty

The subject-matter of the claims presently on file differs from the prior art (D1 & D2 above) in that the starting materials and end products are different. Thus claims 1-6 are novel in the sense of Article 33(2) PCT.

iii). Inventive Step

The subject-matter of the present application is novel by virtue of a slightly different starting material is transformed into a slightly different end product. However, given the action of the two microorganisms of claim 3 on sorbose, the person skilled in the art would naturally think that they would have the same action on very closely analogous compounds (of claim 1). Thus he would think to prepare the compounds of claim 1 by using the microorganisms of claim 6. Thus the subject-matter of claim 1 lacks an inventive step in the sense of Article 33(3), PCT. Dependent claims 2-6 do not appear to contain any features which, in combination with the features of any claim to which they refer, would give rise to an inventive step, since they are merely detailing information which a skilled person would be aware of.

1. A process for the production of L-aldonolactone from L-aldohehexose by a microorganism belonging to the genus *Pseudomonas* or *Gluconobacter* capable of producing L-aldonolactone from L-aldohehexose, and, optionally, isolating the L-aldonolactone from the reaction mixture, wherein the L-aldonolactone is selected from the group consisting of L-gulono-1,4-lactone, L-gulonic acid, L-galactono-1,4-lactone, and L-galactonic acid and the L-aldohehexose is selected from L-gulose or L-galactose.
2. The process according to claim 1 wherein the microorganism is *Pseudomonas putida* or *Gluconobacter oxydans*.
3. The process according to claim 2 wherein the microorganism is *P. putida* ATCC 21812 or *G. oxydans* IFO 3293.
4. The process of claim 1 wherein the microorganism is used in a growing culture or a resting cell reaction.
5. The process of claim 1 wherein the process is conducted for 1 to 120 h at a pH in the range of from about 1 to about 9 and at a temperature in the range of from about 13°C to about 45°C.
6. The process of claim 5 wherein the process is conducted for 1 to 120 h at a pH in the range of from about 2 to about 8 and at a temperature in the range of from about 18°C to about 42°C.

EPO - DG 1

17.08.2004

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